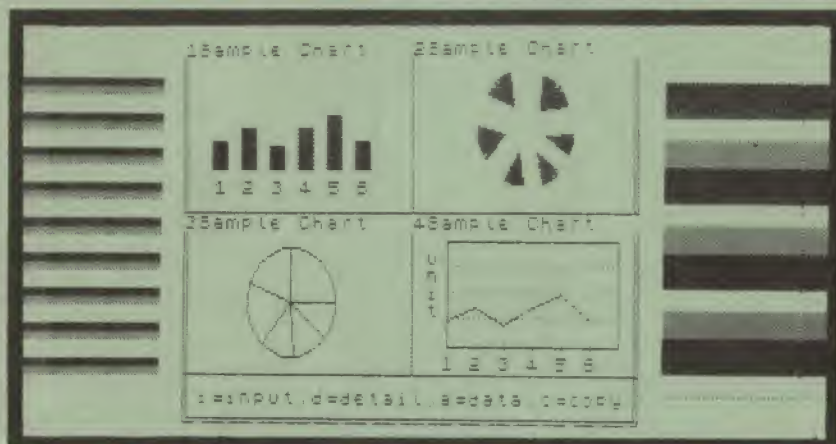


SYNCHRO—SETTE

THE SUBSCRIPTION MAGAZINE FOR YOUR MICRO COMPUTER
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[sample graphics from the TS2068]

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ANY DAY NOW

The TS-1500s are already being sold on the East coast, according to reports from some of our subscribers. It will take an un-determined time before they are available throughout the U.S.

We still believe that the 1500 will be under-emphasized and will be available in limited quantities. We base this judgement on the fact that there has been no advertising campaign, either by TV or in magazines that we are aware of. We believe the reason for this is that the 1500 will be promoted primarily as an inexpensive educational tool to learning institutions.

The 2000, however, has begun to be promoted through magazine advertising. We are supposed to have ours before October 10th. Nationwide distribution is supposed to begin October 15th. Sears is supposed to be selling the 2068 for around \$189.95. Look for a lack of software at first, particularly in the cartridge area. Try typing in 1000 programs. They should be 99% compatible.

DON'T BE MAD

We must have had at least 100 people write or call regarding our September/83 issue being late. There were a number of reasons for this, the main one being that the cassette tapes took over a month longer to get to us than anticipated. The explanation from the duplicating

company was that the labels were mis-printed and everything had to be done over again.

We apologize for this inconvenience and know many of you really look forward to receiving the cassette issues. We hope it doesn't happen again. Issues are usually shipped during the first week of the current month. Since it took so long, we decided to ship both the September and October issues together.

SYNTEXT 2000

We should have available soon a word-processing program for the TS-2068 utilizing its full capabilities. It will have all the features of the TS-1000 version with some enhancements. For one thing, you will be able to load and save much larger files directly from the program in much less time.

This will be the first of a whole line of 2000 programs and should be available much quicker than the 1000 ones were. We plan to have an entire selection of TS-2000 awareness programs and routines available. This is the area where most users show interest and is most educational in increasing the aspiring programmer's capabilities.

Business programs will also be available, and with the superior capabilities of the 2000, numerous enhancements will make these programs operate like those on main-frame computers in many cases.

WHAT DO I DO WITH
MY OLD 1000?

Don't throw it away! The same TS-2040 printer will work on both computers. Make print-outs of your favorite programs and/or routines and type them into your 2000. They will work in almost all cases with little (if any) modification.

Better yet, convert it into a

FORTH computer that will allow you to toggle between FORTH and BASIC. You now have a powerful computer that can give mathematical operations at a greater speed (see TRF FORTH ad from Soft-Magic in September issue).

2000 EMPHASIS

We want to know your feelings about our articles about the 2000. Did you like the Old Professor emphasizing this month's tutorial with 2000 information or would you rather have seen something about the 1000? Do you think we should keep the majority of the magazine dedicated to the ZX-81/TS-1000/TS-1500? Should it show about a 50/50 emphasis (1000/2000), or should we phase out the 1000 oriented material over a period of 3 to 6 months?

Remember, when the ZX-81 came out, many people were still interested in the old ZX-80. Yet, a few months later, it was all but forgotten.

I think most people, once they get comfortable with the 2000, will never look at their 1000 again. Plus - about a year from now, I don't think it far-fetched to see the 2068 selling for under a hundred dollars with peripherals such as disk drives (both hard and soft), parallel ink-printers (both dot-matrix and Daisy-wheel), and in-expensive phone modems along with other devices, becoming commonplace.

I'm sure some of you will be quite content with the 1000 for some time to come. I, as a programmer, have never been impressed with any color computer because my heart lies in business applications which, in my estimation, have little use for color or sound.

After working with the 2000, my outlook has changed. Programming with the 2000 is exciting. I even envision writing business programs that will incorporate little

routines, such as when a prompt, such as entering data from the keyboard is required, it will be preceded by a short tune or a flashing color graphics display. This makes computing more interesting for both the programmer and the user. Let us know, one way or the other.

The TS-2068 is truly the People's Computer!

HEAD START

K-SOFT is offering a software package called TAX RETURN HELPER that will be available in January/84. It is for Form 1040 and Schedules A, B, C, D and E and will be available for the TS-1000/16K - \$14, TS-2000 - \$18.00 and Commodore 64.

A set of 5 programs is included and includes a screen copy of the form and works like an electronic spreadsheet where when a change is made, all lines affected are updated on the spot. Form 1040 and Schedule A are automatically correlated and the cost is tax deductible.

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Did you receive a yellow renewal card with this month's issue? If so, this is the last issue due on your subscription. If you renew, you will receive a FREE software package of your choice - either #005 PARTY GAMES, #114 SELF ANALYSIS, #006 SYNTAX, #004 HOME BUDGET or #103 ARCADE GAMES.

This offer is only good for 30 days after this issue is mailed so take advantage as soon as possible (besides, we need the money).



Good morning Class. I notice that some of you have TS-1500s already. Many of you have expressed a desire to get some advance programming knowledge of the TS-2000. So be it!

Today, we are going to compare the 2000 in its capabilities against the 1000. Let us suppose each of us had a 2000 (the actual name is the TS-2068) in front of us. What are some of the things we would notice?

Well, it's bigger - about 2 1/2 times the size of the 1000. It's metallic grey in color. It has two video outputs, one for a TV and the other for a CRT.

The main difference is the keys. We notice as many as 6 functions per key. There are two SHIFT keys, one white - the other black. There are a whole bunch of new commands that were not on the 1000. There is no FAST or SLOW command. The reason for this is because the machine always operates in the FAST mode without losing the video display, even when LOADING or SAVING programs.

We can create a graphic video display and save it by itself with no program lines by using the SCREEN\$ command which is the screen save command.

We can also save data separate from the program. This is going to be the subject of this month's tutorial. Let us say that we have a

small business and we keep our data files by the month of our customer's receipts. Let us say that once a year we want to send out Christmas cards to all our customers.

If we used the 1000, we would feed in the 12 separate files, one at a time and make 12 lists. If we wanted one list (so that we could sort them by various fields) with all the files in it, we would have to start from scratch and type in the data all over again, allowing that our computer has enough memory to accommodate all that data.

The 2000 will allow us to pull into a program as much data as memory will allow. Let us say that we have a menu-driven program with the following menu:

```
TO ENTER CUSTOMER DATA - 1
TO EDIT CUSTOMER DATA  - 2
TO SEE OR PRINT-OUT     - 3
TO SAVE FILE ON TAPE    - 4
```

ENTER ONE OF ABOVE

Most of us are familiar with this type of menu approach. Let us say that our variables are as follows:

```
N          is the maximum amount
            of customers as set by
            an earlier line number
N$(N)      is the customer's name
A$(N)      is the address
T$(N)      is the city or town
Z$(N)      is the Zip Code
```

We set N to be equal to 100. If this program were to be written for the TS-1000, the routine to save data on tape from prompt #4 might read as follows:

```
4000 CLS
4010 PRINT "ENTER THE NAME OF THE
FILE, SET UP THE RECORDER AND
PRESS THE <ENTER> KEY :::"
4020 INPUT F$
4030 SAVE F$
4040 GOTO 100
```

Where line #100 returns the menu. This routine saves the data variables AND THE PROGRAM. This means that the data files cannot be

separated from the programs. It is also a memory space waster because of the two being together. Files take up more space on tape and take longer to load. The same routine written for the 2000 could be as follows:

```
4000 CLS:INPUT "ENTER THE NAME
      OF THE FILE, SET UP THE
      RECORDER AND PRESS THE
      ENTER KEY :::";F$
4010 INPUT F$
4100 SAVE DATA F$ N$( )
4110 SAVE DATA F$ A$( )
4120 SAVE DATA F$ T$( )
4130 SAVE DATA F$ Z$( )
4200 GOTO 100
```

The lines between 4020 to 4050 save the variables by themselves to tape. The user's manual is sketchy as to the function of the parenthesis. I may be wrong but I think this format will either save the first of each variable or just the variables in memory. If the first is true, the format might be changed to the following:

```
4080 SAVE DATA F$ R1 ( )
4090 FOR I=1 TO R1
4100 SAVE DATA F$ N$(I)
4110 SAVE DATA F$ A$(I)
4120 SAVE DATA F$ T$(I)
4130 SAVE DATA F$ Z$(I)
4140 NEXT I
```

With "R1" representing the amount of customers in that file (not the maximum amount that could be entered). The rest of the lines in the 4000 routine would remain the same. This loop would save each individual variable to the tape. CLOSE and OPEN commands, although used on other computers, are not necessary with the 2000 as outlined on page 214 of the owner's manual that I have. They are used on future peripheral drives other than tape recorders.

To retrieve data, the format is the same, except that the program now has to have a routine accessed from the menu. If you were to renumber the 4000 routine to 5000 and change all the "SAVE"s to "LOAD"s and change line 5090 to

read:

```
5090 FOR I=R1+1 TO N
```

The data would not only be retrieved but "tacked on" to any data that already is resident in the file.

Again, the manual I have (early version) is not clear as to the exact format to be used for saving and retrieving data but we will let you know of the correct methods if this one doesn't work. Now - let us study the logic of these routines.

The "R1" variable in line 4080 is the first item stored on the tape. This again represents the amount of arrays (customer data) that are going to be saved on the tape and is derived from a different part of the program.

The FOR NEXT loop between 4090 to 4140 stores all the arrays to tape. The data retrieval routine might look as follows:

```
5080 LOAD DATA F$ R2 ( )
5090 FOR I=R1+1 TO R1 + R2
5100 LOAD DATA F$ N$(I)
5110 LOAD DATA F$ A$(I)
5120 LOAD DATA F$ T$(I)
5130 LOAD DATA F$ Z$(I)
5140 NEXT I
5150 LET R1 = R1+R2
```

5080 determines the value of "R2". You may remember that it was stored as "R1". We can't use "R1" because this represents the amount of arrays that reside in memory already. The program starts off with an early line number setting "R1" to 0. If you are just starting out with no customers in the file and are getting data from tape, this will be the case.

If, however, you have data in memory, let us say 68 customers, then R1 will equal 68. Let us say that the file you are entering has 47 customers in it. Then line 5090 takes R1, adds 1 to it (68+1=69), and calls that the first array that is to be fed in. It now adds R1 and R2 together for a total of 115 and



The Telephone Connection

```

10 LET C=0
20 CLS
30 LET N$="ABCDEFGHIJKLMNOPQRSTUVWXYZ
  WXYZ"
40 SCROLL
50 PRINT "ENTER YOUR PHONE NUMBER"
60 INPUT T$
70 IF LEN T$=8 THEN LET T$=T$
  TO 3)+T$(5 TO 8)
80 SCROLL
90 FOR A=1 TO 4
100 FOR B=1 TO 7
110 IF INKEY$="P" THEN GOTO 250
120 IF INKEY$="C" THEN GOTO 10
130 IF CODE T$(B)<30 OR CODE T$
  (B)>37 THEN PRINT T$(B)
140 IF CODE T$(B)<30 OR CODE T$
  (B)>37 THEN GOTO 160
150 PRINT N$(VAL T$(B)-1)+3-IN
  T (RND*3))
160 NEXT B
170 PRINT " ";
180 LET C=C+1
190 NEXT A
200 IF C/4=INT (C/4) THEN GOTO
  60
210 GOTO 90
220 SCROLL
230 LET C=0
240 GOTO 90
250 PAUSE 40000
260 GOTO 130
  
```

Have a lot of time on your hands?

It won't take long to enter this program but it will probably take a lot of time to find what you are looking for (if you find it at all).

Ever see phone numbers that companies use that make it easy for their customers to remember because all the customer has to do is dial the spelling of a word or a combination of a word and numbers? Some examples are "CARPETS", "BURGLAR", "EATGOOD" OR "SOUNDS1".

Your phone number may have some hidden message in it that you are not aware of! This program uses a routine that has been around for

some time. Unlike others that format a list of possibilities by incrementing the character codes one at a time, a random feature is used which can help you identify possibilities much faster.

Enter the phone number (7 numbers or 8 including "-" - works either way) and sit back. The screen will slowly scroll 4 character combinations at a time per line. If you want the scroll to stop, press the "P" key to pause. If you want to copy to the printer, press the "Z" key while in the PAUSE mode. Press the ENTER key if you just want to re-start the scroll. Press the "C" key to restart with another phone number.



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CLIENT PACKAGE — review

A REVIEW OF BOSS PACKAGE #121 - CLIENT PACKAGE

Here are two programs useful to a small business. "INVOICE" can be used for either keeping a file or generating a printer invoice or receipt for a group of customer sales. "QUOTE" may be used to figure out how much to charge a customer for product and services rendered.

"INVOICE" - This program is both a customer invoice and file program. It uses a unique method of compacting data and can be used to produce either a printed invoice or receipt. Additional data can be added until the computer's memory is exhausted. No dimensionalizing is needed to the program lines to reach maximum capacity.

Instructions are given in the documentation to set the TAX amount and company letterhead information in actual program line.

Prompt #1 from the menu allows data to be entered with automatic invoice numbering with the first invoice in the file set to a number you specify and then asks for the name of the first customer and is followed by 6 more related prompts. On the eighth prompt, the first ITEM NAME will be asked. You will be allowed as many as 30 item entries. If you need more, another invoice will have to be prepared. An item such as "APPLES" may be entered here. The next prompt asks for "HOW MANY ITEMS?". If You sold ten and a half pounds of apples, you would enter "10.5". The next prompt asks for ITEM COST. If the apples are selling for 69 cents a pound, you

selling for 69 cents a pound, you would enter ".69".

After entering all the items and the ITEM NAME prompt occurs, just press the ENTER key and you will be asked if you want a printed invoice. If you respond NO, the menu will return. If you respond yes, you will be instructed to set up the printer and enter a number which will indent the invoice print-out. This number must be between 0 and 32. If you have a 32 column printer, such as the TS-2040, enter "0" for this prompt. If you are using an 80 column printer and you want the print-out to be centered, the proper TAB number is derived in the following manner:

$80 - 32 = 48$ and $48/2 = 24$: 24
spaces + 32 characters + 24 spaces.

This means that the printer will print-out 24 blank spaces before each line with a maximum of 32 characters following and leaving a minimum of 24 blank spaces after that. The print-out should be centered on the paper if the paper is lined up in the printer correctly.

You will notice that all transactions are rounded off to 2 decimal places with trailing zeroes added and right margins justified. Even the item amounts use this format. This may seem confusing as an order for one apple when sold at 25 cents each is shown as "1.00". Print-out becomes disordered when amounts exceed 9999.99.

Prompts 2 and 4 work pretty much the same way in locating data blocks to be edited or printed out. You will be asked to enter the customer name. For example, if your customer's name is "GZORNENPLAT INDUSTRIES", you can enter "GZ" for this prompt as you may feel that those first 2 characters would only be pertinent to that customer (unless GZEEBERNECK SUPPLIES bought something that week). A routine will then search the data string and when "GZ" is encountered, the entire data block for that invoice will be

displayed on the screen in its compressed form. You will notice a lot of question marks in between the data items. These are the visual representation of character codes that are not normally used but are used in this program as data separators. Even though they look the same as each other, they represent 38 different codes and are the secret to what makes this program compact data so efficiently.

You will be asked if this is the correct data block. If you have more than one invoice in the file for that customer and the one displayed is not correct, answer "N" and the program will search for the next one.

To edit, each entry will be displayed, one at a time. If an entry is not to be changed, just press the ENTER key, otherwise, enter the correct data.

Prompt 3 allows the user to save the data on tape with a file name. The saving and loading time will be directly proportional to the amount of data held in the program.

An interesting thing you may try is to BREAK the program and enter "PRINT A\$". This will show all the data that can be displayed on the screen in its compacted form.

"QUOTE" - This program is to be used to estimate how much it would cost to do some work for someone such as putting storm & screen windows on a home or work on a car.

Information is given in the documentation for setting the TAX amount so that only materials and not labor will be taxed.

The program starts by prompting you for the JOB NAME. This can be the customer's name and then the prompt NUMBER OF INSTALLATIONS appears. If more than one identical job are to be done, the program will later total all the appropriate areas on the print-out. The next

prompt, "ARE MATERIAL COSTS TO BE ITEMIZED (Y/N)?" is handled in the following manner:

In most quotes, the materials are itemized. However, if the same type of materials are used over and over again where only the labor is different, the materials need not be itemized and the answer to this prompt would be no.

We are shown the prompt ITEM? If we had a landscaping company, our first material item might be called SOD.

The prompt COST appears. Here, the cost amount of each portion of SOD would be entered.

The prompt <QUANTITY> asks you how many sets or packages of SOD are needed. The user needs to enter how many sets of SOD at that price are to be used. If other SOD at a different price is to be used, it has to be entered as another ITEM.

If the COST was entered as 245 and the QUANTITY as 1, then the following format is displayed:

ITEM	COST	QUANT	EXTEND
SOD	245	1	245

The next ITEM to be entered might be FERT for fertilizer (8 char. max) which costs 1.98 per bag. The QUANTITY could be 27 bags for each lawn. Now the displayed format shows:

ITEM	COST	QUANT	EXTEND
FERT	1.98	27	53.46

You will notice that the EXTEND column shows the extended amount for that material item which multiplies the COST times the QUANTITY.

If we have no more materials to enter at this point, for the ITEM prompt we just press ENTER.

The total material cost is now displayed. A prompt for print-out will also appear.

We now will move on and start

entering the labor costs.

Before we continue, it would be a good idea to explain that the labor is divided into two areas, SHOP LABOR and OUTSIDE LABOR. I purposely used an example where we could see both. If one or the other is not used, do not itemize that area and ENTER <0> for the total labor amount in that area when asked.

The prompt ITEM in this mode can be the employee's name or employee number. ENTER <S. JONES>. Let us say that Sam Jones makes 5.00 per hour. ENTER <5> for the COST prompt. Let us say that it takes Sam 7 hours and 15 minutes to cut and prepare the sod from the sodfarm. This figure must be converted to its decimal equivalent. The QUANTITY prompt is asking for how many hours Sam will work. ENTER <7.25>.

Again, the format is displayed. Notice that the <5> in the COST column immediately follows the name <S. JONES>.

George Peters is going to load the sod and fertilizer on the trucks. He gets paid 4.50 an hour and it will take him 2 hours and 20 minutes to do it.

George is the last employee to perform shop labor, so for the next item prompt we would just press ENTER.

The totals for SHOP LABOR are now displayed and again a print-out prompt would be displayed.

ON SITE LABOR TO BE ITEMIZED?

Sam Smith, an employee, has a specialty of laying the sod. He gets 5.00 per hour and it will take him 5 1/2 hours to do the job.

Tom Thumb, another employee, is an expert at fertilizing the lawns and is paid a wage of 4.25 an hour for his services and it will take him about 2 hours and 15 minutes to complete his work.

Since there are no more employees

in this area, the totaled data will be displayed.

OVERHEAD - (% OF DIR LABOR)

This prompt asks you how much more, percentagewise you want to charge your customer for labor. In other words, do you want to mark your labor up 50%, 100%, 200% or what?

Now the prompt PROFIT (% OF JOB COST) appears. This prompt asks you - of the total costs incurred so far including the mark-up for labor costs, what would be the percentage you want added to that sub-total for your profit margin?

If the proper data is entered, the job quote will appear on the screen. A print-out prompt also appears.

The Client Package #121 sell for 19.95 from us (subscribers can now deduct 25% on this and all other BOSS software).

Sample invoice from first program:

YOUR COMPANY
123 45TH ST.
ANYTOWN, NY, 11111
(555) 555-5555

DATE OF SALE - 11/11/83

XYZ LTD.
123 45TH ST.
ANYTOWN
IL
666666
987-8543

INVOICE NUMBER 1235

AMOUNT	ITEM	COST EA.	COST
10.50	APPLES	0.69	7.24
5.25	ORANGES	0.69	4.67
7.75	PEACHES	0.69	6.89
SUB-TOTAL =			18.80
TAX =			1.12
TOTAL =			19.92



But you thought the highest line number you could enter in a program was 9999. Guess again!

Enter this short program:

```
10 REM
20 INPUT A
30 INPUT B
40 POKE 16509,A
50 POKE 16510,B
60 LIST
70 PAUSE 40000
80 CLS
90 RUN
```

For the first input enter "39" and for the second input enter "15". The program will list itself and the first line will be numbered "9999". This is the limit in normal programming.

Press ENTER and the program will recycle. Now enter 39 and 16. Voila! The first line number has changed to a quasi-hexidecimal number. You can keep re-cycling the program and entering larger numbers. You'll find that 63 and 255 to be the limit. If the first input exceeds 63, the program will appear to disappear. Enter POKE 16509,0 and it will return. A funny thing happens when the limit is approached. The "F" limit of the hexadecimal counting system has been surpassed with "G".

Break the program and enter "10 REM XYZ". Now list the program. Now enter "20 REM ABC".

Strange, huh? Try editing lines! The ones before the original REM line can be edited but beyond that

weird things happen. Enter NEW and try this one:

```
10 GOTO 10
```

and enter POKE 16509,40 and POKE 16510,5. Now enter this line:

```
10 SCROLL
```

and enter POKE 16509,40 and POKE 16510,4. Now enter this line:

```
10 PRINT "GOODBYE"
```

and enter POKE 16509,40 and POKE 16510,3. Now enter this line:

```
10 SCROLL
```

and enter POKE 16509,40 and POKE 16510,2. Now enter this line:

```
10 PRINT "HELLO"
```

and enter POKE 16509,40 and POKE 16510,1 and finally this line:

```
10 SCROLL
```

LIST the program. Looks crazy but it runs perfectly, just as if the lines were in the normal range. This will give you something to experiment with, as I'm sure you will want to write your programs utilizing this extra line space (ha ha!).

SIMULATE COMMANDS FROM OTHER BASICS

2 programs show you how to simulate READ, DATA & RESTORE which allows data to be entered into program lines and PRINT USING which formats columns of numbers with the right margin justified, automatic truncation to 2 decimal points, trailing zeros added and commas added for "thousands" separation.

These two sets of commands were left out of ZX-81/TS-1000/TS-1500 BASIC. Now write these command simulation routines into your programs.

Package #110 14.95

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What can the 2000



do for you?

First for the bad news. Contrary to previous reports, the TS-2000 has the following features:

- only 26 String variables, A to Z. If lower case letters are used, they are treated as upper case. In other words, "A\$" is the same as "a\$".

- the string variables are not self-dimensionalizing. "DIM A\$ 10" will allow ten strings, one character in length. The same format as on the TS-1000 must be used to dimensionalize the array to the maximum amount of characters needed in any string with the same wasted space as on the TS-1000.

These "two drawbacks (and I do consider them drawbacks) may hinder the use of the 2000 series as a serious business machine. Of course there is much more memory space to work with, so the data input is increased but the bottom line reads that sort routines can only hold a limited amount of data.

The good news, however, far outweighs the bad. The 2000 will allow just about all the easy programming features of the 1000 and quite a few additional.

Let me say that I was fortunate to have lent to me a TS-2068 for a few days to work with. Immediately I was impressed with the high-resolution graphics (see the

high-resolution graphics (see the printouts made with the TS-2040 printer - plugs right in).

I wrote a short word-processor routine based on our SYNTAX program and was amazed at the speed of the character return to the screen. Imagine using SYNTAX without the blink after real moving keys are pressed! That is how it works on the 2000.

Although the 2000 only allows 26 dimensionalized string variable arrays, a single string still has the capability to hold as many characters as memory will allow. A short program I wrote gave me a total of 12,840 characters maximum. I don't yet know if this amount will diminish as a program grows in size.

The fact that a single string can hold so many characters (I know of no other computer that can hold more than 255 characters per string) along with the powerful characteristics of the "IO" command, coupled with the fact that it always operates at a speed comparable to the FAST mode of the 1000 but without losing the screen image, means that Word-Processors and Spread-Sheet Analysis programs can be written in BASIC and have near capacity of machine language in speed.

Also, the 2000 has a BREAK/SPACE key and bar that will only break the program when it is pressed simultaneously with the SHIFT key.

A pleasant surprise is the BEEP command. A line such as: "1000 BEEP 1,0" will produce a sound of a pitch of middle C for one second through a speaker in the computer. The first number can be from 0 to 10 (fractions allowed) for the time interval and the second from -60 to 69 for the pitch. All sorts of cute tunes can be produced.

Another pleasant surprise is the DELETE command. Ever had a program in which you wanted to delete a whole bunch of lines? Maybe you had

(continued on p. 16)



Dear Ed,

I just purchased the TS-2040 printer. I own a Memotech 16K RAMpack and a TS RAMpack. The computer works fine with the TS pack but hangs up with the Memotech. The "K" cursor will not appear and the computer seems to be executing a "NEW" command over and over again.

Are the Memotech RAMpack and TS-2040 not compatible?

Sincerely - R. Lodo, Tulsa, OK

Dear Bob,

Both the Memotech RAMpack and the TS-2040 are designed to connect directly to the 1000 with whatever peripheral attached to the rear piggyback connector. I have had the same problem and know of no way to overcome it. You might try writing to Memotech direct and see if they can offer some kind of modification - Ed

Dear Ed,

Will the TS-2000 be able to use the exact same language and commands as the TS-1000? Also, I am planning to get a TS-1500 for my son for Christmas. Will there be any problems using my old 1000 programs?

E. Pavalek - Tempe AZ

Dear Ernie,

The TS-2000 will not only use the same language and commands as the 1000 (see 2000 article, this issue), but will also have many more commands. It will have as many as 6 functions per key instead of 5.

Tapes for the 1000 will not load into the 2000. For one thing, the baud rate is 4 times (1200 baud or bits per second - 8 bits in a byte - one byte per character) as fast as the 1000. Speculation is that if the 1000 programs could be speeded up to 4 times their normal loading rate, the 1000 programs will operate in the 2000. This remains to be found out.

The 1500 is identical to the 1000 except that it has 16K internal RAM (16K RAMpack can be added for 32K) and moving keys instead of the membrane. I have loaded 1000 programs into the 1500, both BASIC and machine language - Ed.

Dear Ed,

How can a space be typed into the "BABY SYNTAX" program? The April issue states that the BREAK key can not be used. The BREAK key is the SPACE key!

Sincerely Yours - E. Tam - San Francisco, CA

Dear Eric,

This is one of the weak features of the 1000. The 2000 will require that the SHIFT key be pressed with the BREAK/SPACE key in order for the program to break.

A space can be typed on the 1000 by using the shifted right arrow key. If a space is needed in existing text, use the insertion mode as explained in the documentation along with the shifted right arrow key - Ed.

Dear Ed,

As a subscriber, I am obligated to write and express my feelings about Timex. I was sad to find out that the 16K 2000 series computer is not going to be manufactured. Now I am stuck with a decision. Whether to upgrade my TS-1000 or go on to another system, which I really do not want to do.

I have also written Timex a letter telling them how I feel.

Keep up the good work. You have an excellent magazine!

Sincerely yours - B. Mobley, Akron, OH

Dear Bryan,

From the content of your letter, I believe you are not aware that only the 16K version has been dropped. The 48K RAM 2068 model should be available soon. If you are aware of this and the \$200.00 price is what turns you off, then keep in mind that the 16K version would have been only \$50.00 cheaper.

The only other popular color computer computer that I aware of that sells for less than \$200.00 is the TI-99/4A, which is selling almost everywhere for \$100.00 with rebate, or the Atari 400. Both these computers have drawbacks which I feel make the 2068 a bargain,

particularly when it comes to cost of expansion.

Timex's thinking regarding dropping the 16K model was based on two premises. The late entry into the competitive market would give the 16K version a certain amount of obsolescence and by dropping the 16K version, the 48K model could be produced faster and in greater quantities. The small production quantities of the 1500 are also related to concentrating on their main effort - that is marketing the TS-2068 - Ed.

a routine in a program and youaced out the unwanted lines, one by one. Let us say you had such a program on the 2000 that was numbered from 10 to 9990 in increments of 10 and you had a routine that started at line 2000 and ended at line 2490. First enter "DELETE 10,1990" and then "DELETE 2500," and Voila! The unwanted lines disappear.

A line such as <100 INPUT "What is your name?";n\$> makes "What is your name?" appear at the bottom of the screen with a blinking cursor after it.

There are many other things about the 2000 that will appear in future issues, but a word of caution;

The 2000 is a bit more complicated to operate and program than the 1000. You have to learn the proper sequence of what keys to push to make the various commands appear on the screen. Keys have as many as 6 functions each and there will be either a lot of hunting through the owner's manual or a lot of trial & error. The "single keystroke" entry of keywords may require a few keystrokes just to set up the situation where the keyword can be entered with a single keystroke. It is frustrating at first but as the user becomes familiar with the set-up, the excitement starts to take hold.

I have worked with many computers, including the Commodore 64, which is an excellent machine. For learning and using BASIC language programming in any area, the 2000 is in a class by itself and exceeds the capabilities of any computer in its price range and many of those selling for up to \$2000.

Last notes - I made a printout of a 48K program that was supplied with the computer and it was so long that we rolled it up and put it in our rest room for a spare - Most joysticks will plug right into the 2000 - The 2000 will come with a cassette including 3 programs; 2 games and a home budget program - program copy protection routines can be written that will make a program that is SAVED, not LOAD properly.